TOPCON

INSTRUCTION MANUAL
DATA COLLECTOR FC-2000

Thank you for purchasing the TOPCON Data Collector FC-2000.
For superior product performance, please read this instruction manual carefully and keep it in a convenient place for future reference.

GENERAL HANDLING PRECAUTIONS

- Before starting work or operation, be sure to check that the instrument is functioning correctly with normal performance.
- Always make sure instrument is dry before putting it in the soft case. Never store a damp instrument.
- Do not leave the instrument under strong sunlight for a long time. It may cause the instrument to malfunction.
- When waterproofness is necessary, close all the caps securely. However, the serial connector COM1 has a waterproof structure, so it will remain waterproof even if its cap is not closed.

DISPLAY FOR SAFE USE

In order to ensure the safe use of this product, prevent any danger to the operator or others, or damage to property, important warnings are placed on the product and inserted in the instruction manual. We recommend that you become familiar with the meaning of these Warnings and Cautions before continuing.

Display	Meaning
⚠ WARNING	**Ignoring or disregard of this display may lead to the danger of death or serious injury.**
⚠ CAUTION	**Ignoring or disregard of this display may lead to personal injury or physical damage.**

- Injury refers to hurt, burn, electric shock, etc.
- Physical damage refers to extensive damage to equipment and structure or furnishings.

STANDARD PACKAGE COMPONENTS

Upon opening, make sure that all the followings are included.

1	FC-2000 Instrument	1set
2	BT-62Q Battery	2pcs.
3	Battery charger BC-30	1pc.
4	AC-DC converter AD-9B or AD-7C*1)	1pc.
5	Instruction manual	1vol.
6	Handstrap	1pc.
7	Neckstrap	1pc.
8	Soft case	1pc.
9	Stylus pen	1pc.
10	Display protection sheet	5pcs.
11	Interface cable F-25	1pc.

*1) AD-9B is for AC 120V use, AD-7C is for AC 230V use.
2) Components are different by the markets.

SAFETY CAUTIONS

⚠ WARNING

- **There is a risk of fire, electric shock or physical harm if you attempt to disassemble or repair the instrument yourself.**
  This is only to be carried out by TOPCON or an authorized dealer, only!
- **May ignite explosively.**
  Never use an instrument near flammable gas, liquid matter, and do not use in a coal mine.
- **High temperature may cause fire.**
  Do not cover the charger while it is charging.
- **Risk of fire or electric shock.**
  Do not use a wet battery or charger.
- **Battery can cause explosion or injury.**
  Do not dispose in fire or heat.
- **To reduce the risk of hazards, use only CSA/UL certified power supply cord set, cord is Type SPT-2 or heavier, minimum No.18 AWG copper, one end is provided with a moulded-on male attachment plug cap (with a specified NEMA configuration), and the other end is provided with a moulded-on female connector body (with a specified IEC non-industrial type configuration).**

⚠ WARNING

- **The short circuit of a battery can cause a fire.**
  Do not short circuit battery when storing it.
- **Battery can cause outbreak of fire.**
  Do not use any other type of charger other than the one specified.
- **Risk of fire or electric shock.**
  Do not use any power voltage except the one given on manufacturers instructions.

⚠ CAUTION

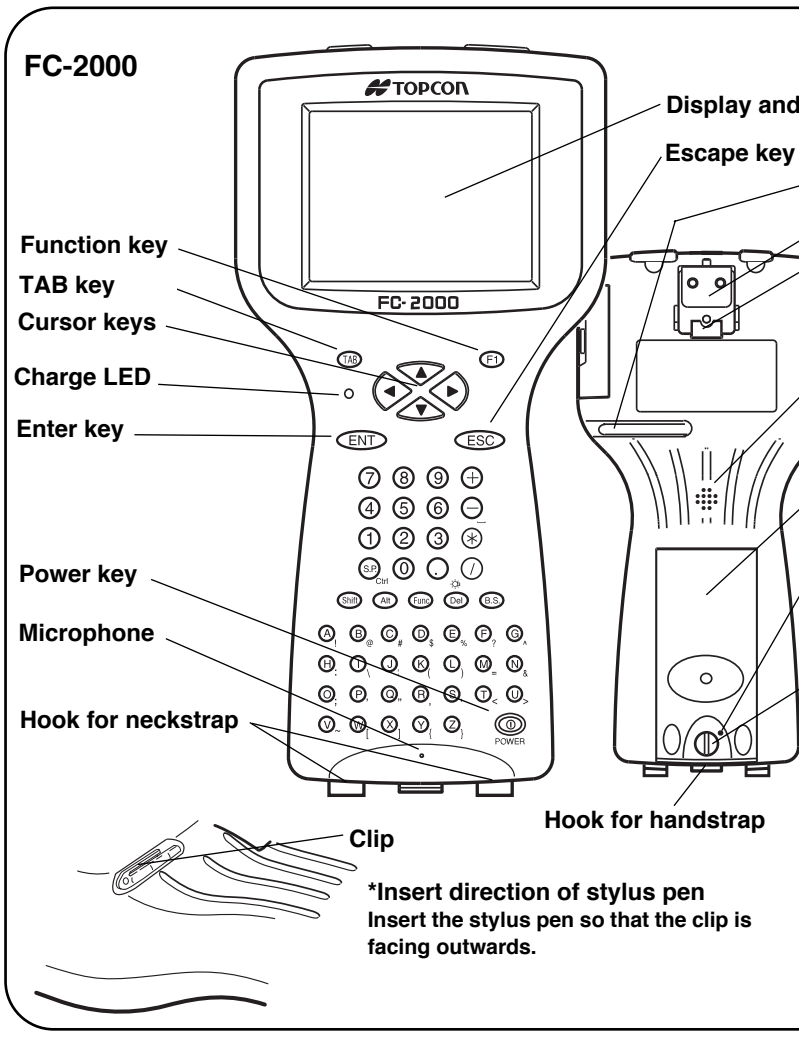
- **Do not allow skin or clothing to come into contact with acid from the batteries, if this does occur then wash off with copious amounts of water and seek medical advice.**
- **Do not connect or disconnect equipment with wet hands, you are at risk of electric shocks if you do!**
- **Do not touch the charger, AC-DC converter or heating part of the instrument for a long period while charging the battery. There is a risk of low-temperature burn.**

Exceptions from Responsibility

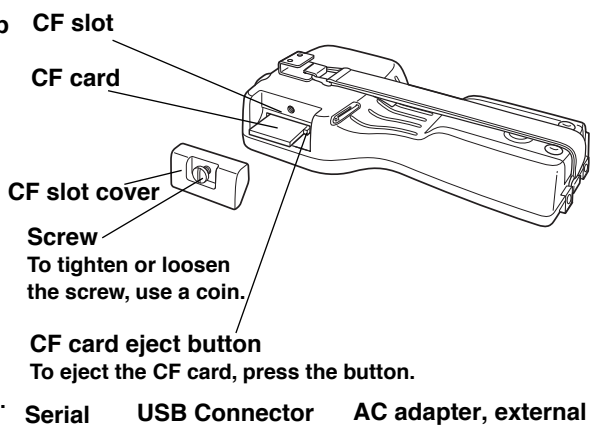
1. The user of this product is expected to follow all operating instructions and make periodic checks of the product's performance.
2. The manufacturer, or its representatives, assumes no responsibility for results of a faulty or intentional usage or misuse including any direct, indirect, consequential damage, and loss of profits.
3. The manufacturer, or its representatives, assumes no responsibility for consequential damage, and loss of profits by any disaster, (an earthquake, storms, floods etc.), fire, accident, or an act of a third party and/or a usage in other than usual conditions.
4. The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits due to a change of data, loss of data, an interruption of business etc., caused by using the product or an unusable product.
5. The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits caused by usage other than explained in the user manual.
6. The manufacturer, or its representatives, assumes no responsibility for damage caused by wrong movement, or action due to connecting with other products.

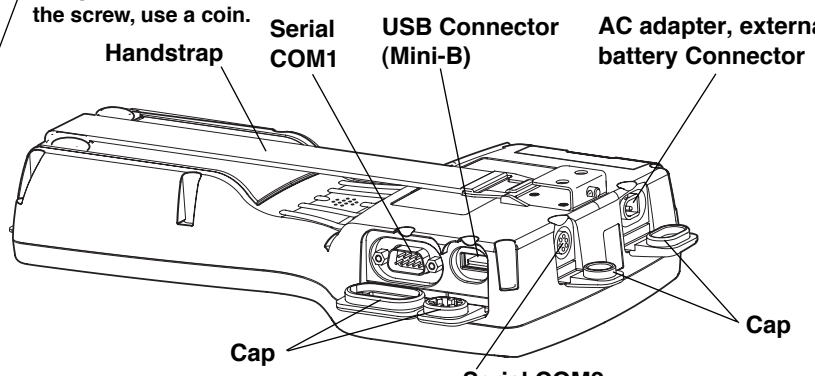
NOMENCLATURE AND FUNCTIONS

FC-2000



CF Card Slot
In the Suspend (power OFF) and Standby modes, this instrument does not supply power to the CF card.
If you switch to the Standby mode while a Bluetooth™ card or some other I/O communication card is in use, the link will be cut. Turn off the Standby mode before using these cards.


CF slot
CF card
CF slot cover
Screw
To tighten or loosen the screw, use a coin.
CF card eject button
To eject the CF card, press the button.

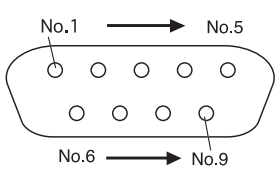


Shortcut Keys

Backlight ON/OFF	**[Func]+[.]**
Ctrl Key	**[Func]+[S.P]**
Soft Reset	**[Shift] + [Func] + [ESC]** Push those keys up for at least 2 seconds.
Windows Start Menu	**[Func]+[/]**
Shortcut Commands	**Press [Alt] + Tap on an item** is the same as a right click on a mouse. A menu is displayed containing commands specific to the item.
Windows CE Task Manager	**Press [Alt] + [TAB]** to switch to another active program or to END Task on running program(s).

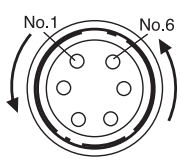
CONNECTORS

Serial COM1



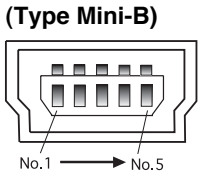
No.1	DCD	(IN)
No.2	RXD	(IN)
No.3	TXD	(OUT)
No.4	DTR	(OUT)
No.5	GND	
No.6	DSR	(IN)
No.7	RTS	(OUT)
No.8	CTS	(IN)
No.9	RI	(IN)

Serial COM2 (Total Station)



No.1	GND	
No.2	CTS	(IN)
No.3	TXD	(OUT)
No.4	RXD	(IN)
No.5	RTS	(OUT)
No.6	VDD	(IN)

USB Connector (Type Mini-B)



No.1	VDD
No.2	V-
No.3	V+
No.4	NC
No.5	GND

PREPARATION FOR USE

Battery

There are two ways to charge the battery as follows.

Battery Charging (Using BC-30)

1 Install the battery on the BC-30.

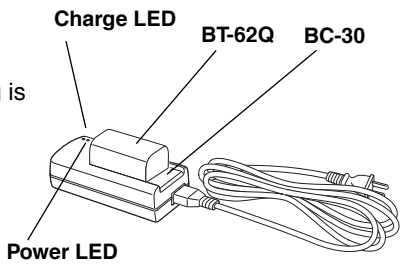
2 Plug the power cord in an outlet.(AC-120V or 230V) Charging is completed after approximately 3 hours.

The Power LED of BC-30;

Red ON : Power is on.

The Charge LED of BC-30 will indicate charging status;

On Solid : Wait for charging.
Red ON : Charging.
On Solid : Charging completed.
Red Flashing : Charging error.



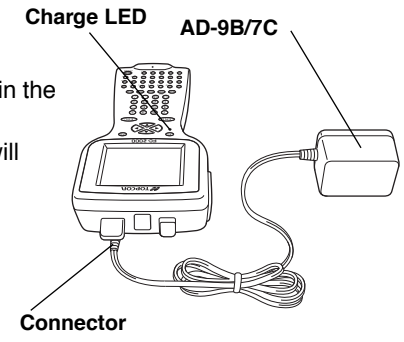
Battery Charging (Using AD-9B/7C)

1 After installing the battery, plug the connector of AD-9B/7C in the FC-2000.

2 Plug the AD-9B/7C in an outlet. Then the run charge LED will light. Charging is completed after approximately 5 hours. The display can be turned on or off by the power key.

The Charge LED of FC-2000 will indicate charging status;

Red ON : Charging.
Green ON : Charging completed.
Red Flashing : Charging error.



Note: The instrument may develop heat while charging, there is no problem of it.

Battery Installation

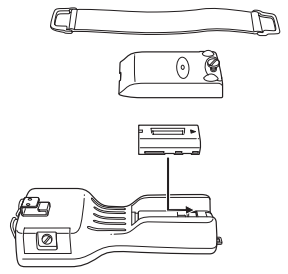
1 Remove the handstrap from the FC-2000.

2 Using a coin, loosen the screw on the battery cover.

3 Remove the battery cover.

4 Install the battery pack.

5 Using a coin, install the battery cover. Tighten the screw firmly.



Replacement of Battery

• When the battery is replaced, the data recorded in memory will be lost.
To protect the data, first execute “RAM Data Backup”, then replace the battery.

Note

1)Recharging should take place in a room with an ambient temperature range of +10°C to +40°C (+50°F to +104°F).
2)The battery source will discharge when stored and should be checked before using with instrument .
3)Be sure to charge a stored battery source every 15 days and store in a place at 30°C and below when it will not used for a long period. If you allow the battery to be completely discharged, it will have an effect on the overall performance for proper charging in the future.
4)The charger may develop heat while charging, there is no problem of it.
5)If charging is done at high temperature, charging time of the battery may take longer.

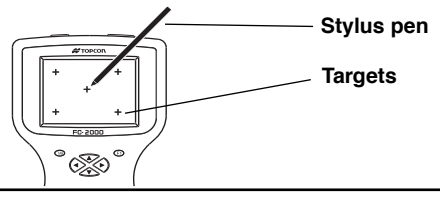
Touch Screen

Adjusting Touch Screen

1 Tap [Start], [Setting], [Control Panel], [Stylus], [Calibration], [Recalibrate] or turn on the instrument after hard-reset.

2 Using a stylus pen, touch the center of the targets.

3 After touching all targets (5 points), press [ENT] key, or tap the display.
(Use an accessory stylus pen to touch a screen. Do not use neither a ball-point pen nor pencil.)

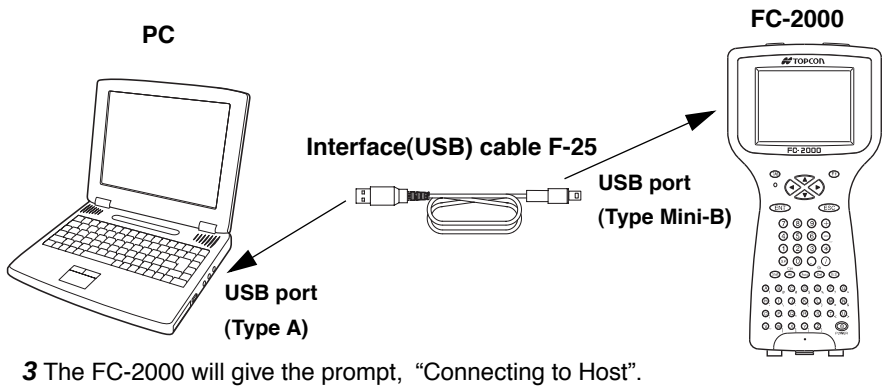


TRANSMITTION DATA TO THE PC

Interface Cable

1 Install ActiveSync in your PC (if it is not already installed).

2 Connect the FC-2000 to your PC with an interface cable F-25 as shown below.



3 The FC-2000 will give the prompt, “Connecting to Host”.

4 The PC will prompt you to set up a partnership or set up as a guest.

5 Select the [NO] key to setting up as a guest.

6 Press the [Next] key.
Once a connection has been established, the ActiveSync window will appear on your PC.

7 Click the [Explorer] icon. You will then see the FC-2000 file structure.

Reference software for Connectivity
See the WEB page as follows.
http://www.microsoft.com/windowsmobile/

SPECIFICATIONS

Microprocessor	:	XScale PXA 255
Processor speed	:	400MHz
Operating system	:	Microsoft® Windows®CE.NET 4.2
Memory	:	64MB RAM 64MB/128MB flash disc (internal)
Display	:	320x240 QVGA (color) 3.5 inch TFT Transflective type
Illumination	:	LED back light
Key board	:	56 key keyboard with separate alpha and numeric
Pen touch screen	:	Resistive touch screen/passive Pen digitization
Interface	:	RS-232C serial (D-sub 9) RS-232C serial (6 pin) USB(1.1) (Mini-B) CompactFlash : Type I / II
External power	:	12V 1A (max)
Audio	:	Sealed Speaker (mono) Sealed Microphone
Durability	:	IP66 (Based on the standard IEC 60529) *1) *1) With the caps
Operation Temperature	:	-20°C to +50°C (-4°F to +122°F)
Storage Temperature	:	-30°C to +60°C (-22°F to +140°F)
Protection against shock	:	Designed to protect falling on the hard surface from 1.0m above the ground.
EMC	:	CE, FCC
Battery BT-62Q	:	Li-ion rechargeable Battery 7.4V 2200mAh (This battery does not contain mercury.)
Operating time	:	20 hours (Typical use) 45 hours (With no display light, no touch)
Charging time	:	Approx. 3 hours with BC-30 Approx. 5 hours with AD-9B/7C
Dimensions	:	255x130x61(mm)
Weight	:	0.8kg(with battery)

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RAM DATA BACKUP

If your device had not recharged during several days, the battery will be running down, and you would lose all of data on the device other than that in the "CF Card (internal CF card)".
In addition, you might perform hardware-reset by the hardware problem or software problem. In this case, you would lose all data same as the above.
You can use Backup function of FC-2000 in order to evade such kind of uneasiness. Your data will be restored to latest condition* automatically when rebooting by using the Backup function.
The Backup function saves all data files of RAM (except for OS files), registry file and additionally installed programs into named "Backup" folder in the "CF Card".

* Restoring former backed up data may be incomplete if you upgrade OS version.
* The conditions that you executed the backup function last.

Execute the Backup function

1 Tap the icon "Start"-"Settings"-"Control Panel"-"System"-"Backup". You can see the "RAM" screen on Display.
2 Tap the "RAM data backup" button. Backup function will start. Return to "RAM" screen automatically, when the data back up has been completed.
3 Tap the button "OK" on title bar. After that "RAM backup" screen will close automatically.

* Backing up data may be incomplete if remaining capacity of "CF Card" is not enough. Please make sure the remaining capacity of "CF Card" before proceeding to the data back up.
* Restoration will be impossible if you delete the "Backup" folder in the "CF Card".

Set the Automatic Backup for every suspension

1 On the "RAM Backup" Screen, please check it 'ON' "RAM data will be backed up before suspension".(Factory setting is 'OFF' as default)
2 Tap the button "OK" on title bar. After that, "RAM backup" screen will close automatically.

Set the restoration disabled after hard reset

1 On the "RAM Backup" Screen, check it 'OFF' the "Data restoration after hard reset."
(Factory setting is 'ON' as default)
2 Tap the button "OK" on title bar. After that, "RAM backup" screen will close automatically.

STORAGE PRECAUTIONS

Always clean the instrument after use.
Use a clean cloth moistened with neutral detergent or water.
Never use an abrasive cleaner, ether, thinner benzene, or other solvents.
Always make sure the instrument is completely dry before storing. Dry any moisture with a soft, clean cloth.

CE
EMC NOTICE
In industrial locations or in proximity to industrial power installations, this instrument might be affected by electromagnetic noise. Under such conditions, please test the instrument performance before use.

FCC conditions
This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

N 13813

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